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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	) TANK AND CAP ASSEMBLY FOR
	) USE WITH MICROCHANNEL
GREGORY T. KOHLER et al	) TUBING IN A HEAT EXCHANGER
	)
Serial No. 10/047,670	) Group Art Unit 3753
	)
Filed January 15, 2002	) Examiner Leonard R. Leo

**APPELLANTS' REPLY BRIEF**

Mail Stop Appeal Briefs-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Reply Brief is in response to the Examiner's Answer dated March 27, 2006.

Appellants' remarks follow below.

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37 CFR 1.8  
CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Appeal Briefs-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 18, 2006.

Signature: \_\_\_\_\_

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Karen Sanderson

### **REMARKS TO EXAMINER'S ANSWER**

The present Reply is being made in response to the Examiner's Answer to the Appellants' Appeal Brief. Appellants incorporate all of the arguments made in Appellants' Brief on Appeal, but would like to highlight the following arguments.

The Examiner has and continues to assert combinations of references that are improper while also failing to directly address several of the arguments Appellants have presented in the current Appeal. Specifically, the Examiner has failed to directly address Appellants' argument that "[t]here has not been a single reference cited in the rejections that teaches that flat tubes are an obvious alternative or obvious substitute for round tubes in a removable, compression type coupling as disclosed in each of the primary references." Appellants' Brief at page 8. Absent such a teaching in the prior art, the Examiner has not overcome his burden to prove that one skilled in the art would modify a round tube and coupling, which is removable, with a flattened tube construction, which is brazed and not removable.

The Examiner continues to assert that "the secondary references of Dale et al, Ryan et al or Ando teach circular tubes and flattened tubes are obvious alternatives of one another," but continues to overlook that the teaching is limited to the context of the reference, i.e. brazed heat exchanger constructions, (Examiner's Answer at page 8) and Appellants contention that it is not obvious to substitute flattened tubes for round tubes in a removable compression type coupling such as disclosed in the primary references. The Examiner's assertion that round and flattened tube structures may be considered an alternatives in the brazed construction heat exchangers of the secondary references is not

a teaching that the structures are interchangeable in the removable compression type structures of the primary references, let alone that it would be desirable to substitute flattened tubes for the round tubes in the primary references. At best, the secondary references can only be found to teach that round and flattened tubes are interchangeable in heat exchangers of a brazed construction. By their very nature, the primary references cannot be brazed because they are designed and intended to be removable. Therefore, there is no motivation or suggestion found in any of the references to make the combinations proposed by the Examiner.

The Examiner has also failed to directly address Appellants' argument that the combination of the secondary references with any of the primary references would require changing the principal of operation of the primary references and/or render the primary references unfit for their intended purposes, referring to M.P.E.P. §§ 2143.01 V-VI. Appellants' Brief at page 6. The nature of the couplings in the primary references rely on compression to secure the round tube to the coupler. Round tubes are specifically used in the primary references as they evenly distribute the compression pressure around the tube. Ignoring for the moment the brazing found in the secondary references, the flat sides of the flattened tubes of the secondary references do not lend themselves to the compression forces used in the primary references. Therefore, the principal of operation of the primary references, i.e. the compression forces, would have to be eliminated to accommodate the flattened tubes of the secondary references. In this regard, it is telling that the Examiner has failed to produce even a single reference that shows a flattened tube used in a compression type fitting such as those disclosed in the primary references.

Additionally, the combination of the secondary references with the primary references would render the primary references unsuitable for their intended purpose. Specifically, the primary references are designed to be disassembled/removed, whereas the secondary references all, at best, teach that round and flat tubes can be interchanged in a brazed construction. Therefore, assuming *arguendo* that the references could be combined, the flat tubes of the secondary references would be brazed (as is taught in the secondary references) to the coupler of the primary references. This resulting structure would not be able to be disassembled, which would render the primary references unsuitable for their intended purpose.

In view of the foregoing, the Examiner's assertion that "there is no structural difference in the two types [the Examiner is referring to removable compression couplings versus brazed constructions], in that, a tube is fitted with an adaptive structure (i.e. cap) to mate with another structure (i.e. tank)" is clearly incorrect. The use of a cap to create a compression force that must be reacted using the hoop strength of a circular tube in order to provide an adequate seal for a fluid coupling is clearly a major structural difference between a tube to header connection that relies on a brazed joint to provide a seal. They are two completely different categories of joints.


In summary, absent a suggestion that it would be desirable to replace flattened tubes for the round tubes of a removable coupling such as shown in the primary references, a *prima facie* case has not been established. Absent such a teaching, the rejections fail to establish a *prima facie* case of obviousness. Furthermore, the secondary references teach the desirability with respect to brazed connections, which if used in the

primary references would render the primary references unsuitable for their intended purpose and completely change the principle of operation of each of the primary references because a brazed connection as taught by the secondary references would not allow for a removable connection, nor would it allow for the compression type of sealing arrangement. This is not allowed in making a rejection under §103.

Therefore, for the above reasons, as well as the reasons stated in Appellants' Brief on Appeal, the rejection should be withdrawn.

Respectfully submitted,

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